



U.S. DEPARTMENT OF
ENERGY

ASCR Expectations for ALCF Early Science Program



ESP Workshop
October 18-19, 2010



ALCF Program Manager: Betsy A. Riley
Presented by: Yukiko Sekine, NERSC PM

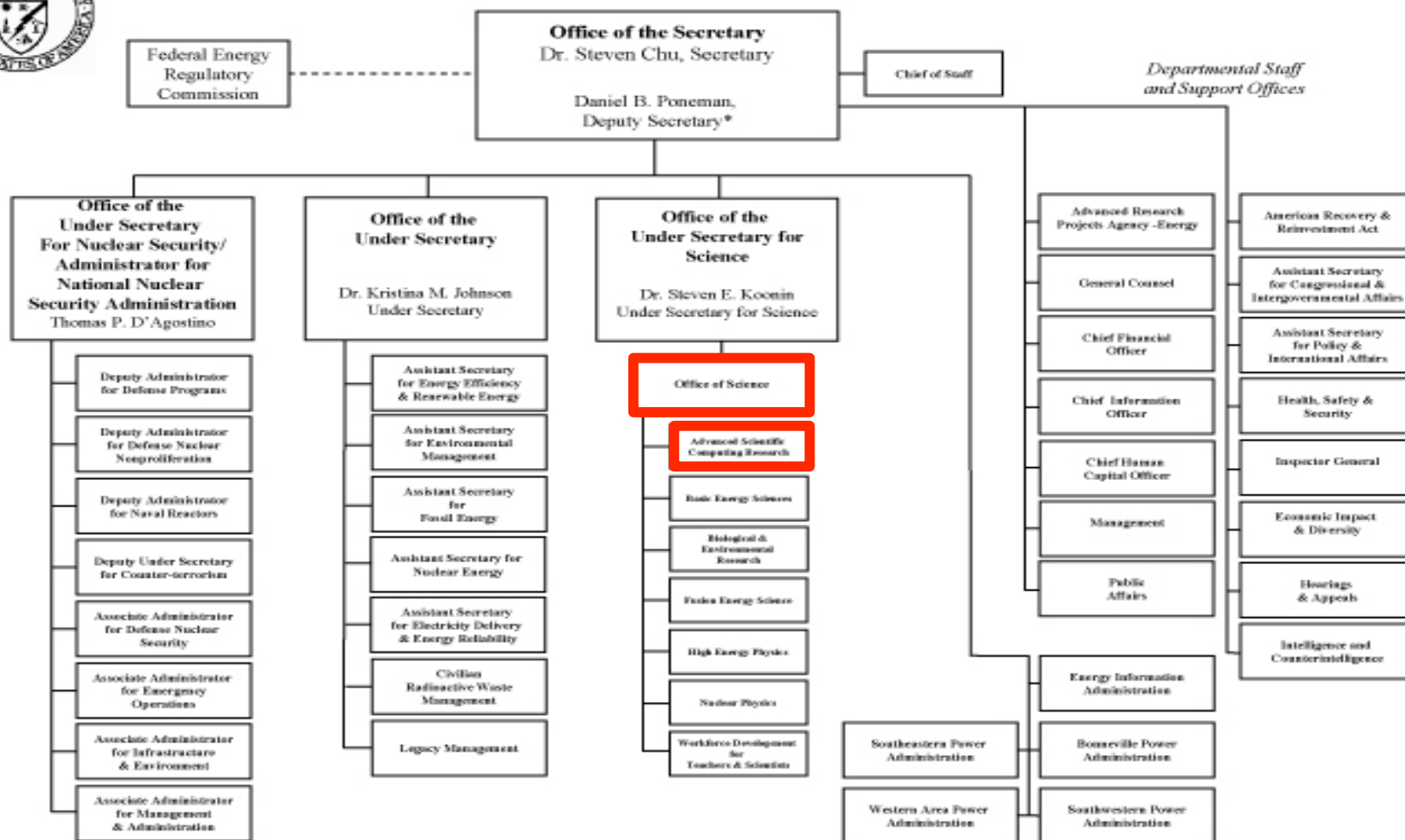


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ASCR is in the DOE Office of Science



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* The Deputy Secretary also serves as the Chief Operating Officer

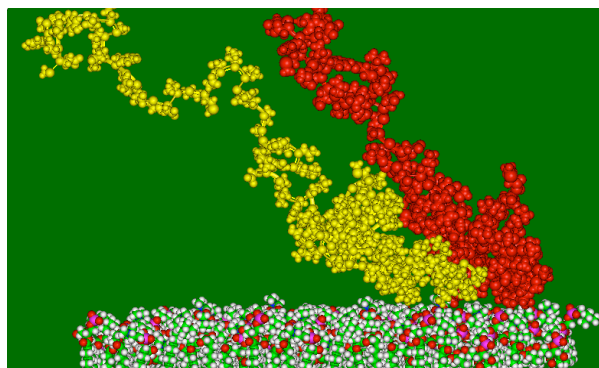
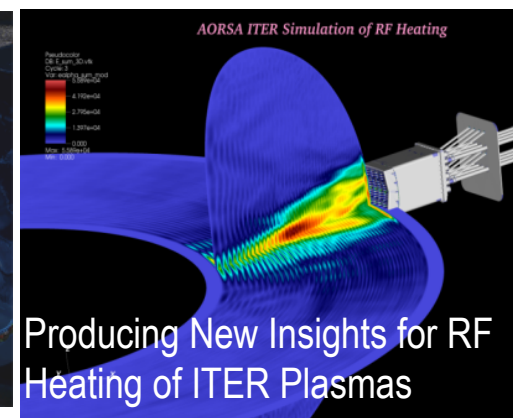
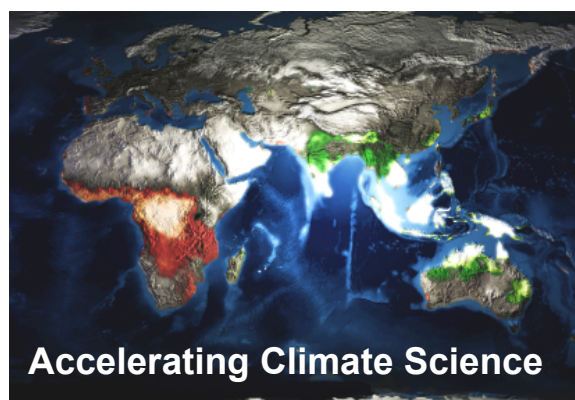
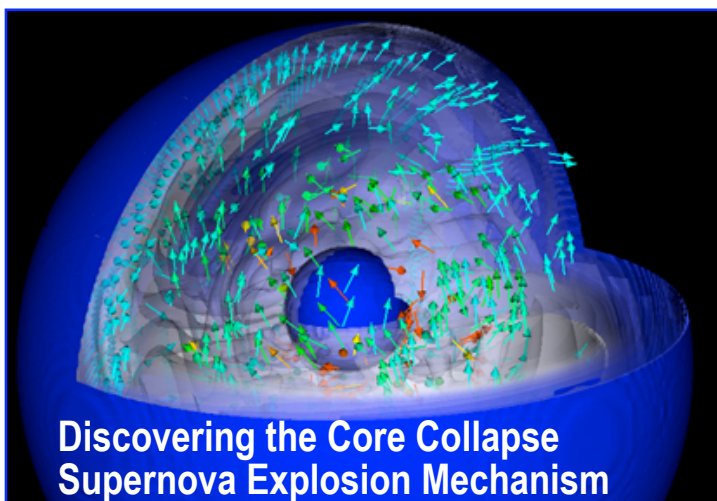
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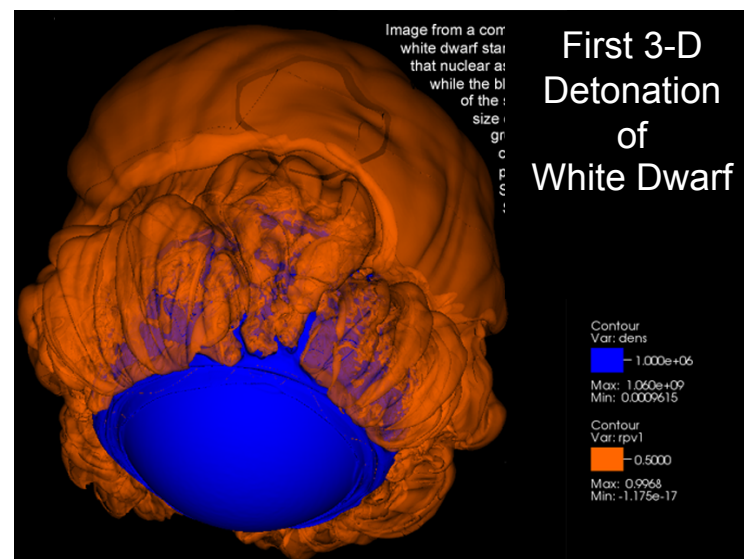
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Show us your *SCIENCE!*
What more can you do -- with 10 PF?

ASCR designs, develops and deploys facilities so that researchers can **DO SCIENCE** in areas important to DOE.



**Modeling of Protofibril Structures Provides Insight
into Molecular Basis of Parkinson's Disease**





ALCF-2 Upgrade: Leap to 10 PF



- more CPUs/node (x 4)
- more concurrency (x 5)
- faster CPUs (x 60)
- faster storage (x 2.7)
- more storage (x 3.6)
- more RAM/CPU (x 2)



~20 times the computing power

Intrepid

Blue Gene/P—peak **557 TF**
40 racks
40,960 nodes (**quad core**)
163,840 processors (3.4 GF Peak)
80 TB RAM
8 PB storage capacity
88 GB/s storage rate
Air-cooled

Mira

Blue Gene/Q—peak **10 PF**
48 racks -- *just one row more than Intrepid*
49,152 nodes (**16 core**)
786,432 processors (205 GF peak)
786 TB RAM
28.8 PB storage capacity
240 GB/s storage rate
Water-cooled

What science can you achieve with the extra power?



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Goal: Science on Day One

Your projects have been chosen to get **early access** and **extra assistance** to help speed your transition to the BG/Q.



***You have <TWO YEARS to make the Leap
So it's Full Speed Ahead!***

FIRST ESP Workshop

October 2010

ESP complete

July 2012

Test and Development Machine

Summer 2012

10 PF Machine

goal: **SCIENCE on DAY ONE**





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*Take
a
deep
breath...*



*...and fill the
available space
with science!*